Economics of production of Bajra in Solapur district

Abstract

The present study was carried out to study cost structure, returns and profitability during the year 2021-22 based on primary data. For the study, 90 Bajra growers were selected from Mangalvedha and Malshiras tehsil of Solapur district. Six villages selected randomly from each tehsil. From each tehsil 15 farmers were selected randomly. The selected farmers were classified into three categories viz., small, medium, large according to their land holding. The Per hectare cost of cultivation of Bajra at cost "C_3" was the highest in large group i.e. 40023.95 followed by medium group Rs. 31095.14 and small group Rs. 26086.85. The average yield and gross returns per hectare increased with the increase in size of farms. The Input Output ratio of Bajra at "C_3" was 1.22 in small group, 1.24 in medium group and 1.26 in large group. This indicates that, Cultivation of Bajra crop was economically profitable. The average main production was 275.89 qt/ha.

Key words: Bajra, cost, returns, profit, input-output ratio

Introduction

Millet is a collective term referring to a number of small seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in subtropical and tropical regions. Under millet group Bajra is an important cereal crop of India. One of the most important cereal crops after the rice, wheat, maize, barley and sorghum is Bajra in the world. Developing countries like Asia and Africa, accounts for 94% of global output across the world with 97% of millet production.

In India, pearl millet is fourth most widely cultivated food crop after rice, wheat and maize. In year 2021, Pearl millet, which accounts for about 2/3 of millet production related in India Major Bajra growing states Rajasthan, Maharashtra, Gujrat, Uttar Pradesh and Haryana.

Maharashtra state is the third largest in area, second in production and seventh in productivity of Bajra. It contributes 8.42 % of area i.e. 0.64 MH and 5.88 MT production under

Bajra in year 2021-2022 i.e. 20 % in production of Bajra. The Bajra is primary crop of dryland area where it is taken on residual moisture and scanty rainfall. Bajra is grown staple food crop which has ability to with stand the adverse condition. In Maharashtra Nasik, Beed, Satara, Sangli, Solapur, Dhule, and Jalgaon are important Bajra growing districts. Bajra is generally grown under rainfed condition in the district.

Pearl millet is the second important millet of India. It considers to be poor man's food It is nutritionally better than many cereals as it is good source of protein (11.6 per cent), minerals particularly iron (8.8 percent), carbohydrates (67 per cent) and fat (5 per cent). It is high energy, nutritious food especially recommended for children. It is also high in phosphorus and calcium. Though Bajra is nutritive, energy rich crop.

Materials and Methods

The standard cost concept i.e. Cost A_1, Cost A_2, Cost B_1, Cost B_2, Cost C_1, Cost C_2, and Cost C_3 was used in present analysis.

Cost A_1: All variable cost excluding family labour cost and including depreciation.

1. Value of Hired human labour (HL)
2. Value of hired and owned bullock labour (BL)
3. Value of hired and owned machine labour (ML)
4. Value of seeds
5. Value of insecticides and pesticides
6. Value of manure
7. Value of fertilizers
8. Irrigation charges
9. Depreciation on implements and farm building
10. Land revenue, cesses and other taxes
11. Interest on working capital
12. Miscellaneous expenses

Cost A_2: Cost A_1 + Rent paid for leased-in land

Cost B_1: Cost A_1 + interest value of owned fixed capital assets

Cost B_2: Cost B_1 + rental value of owned land

Cost C_1: Cost B_1 + imputed value of family labour

Cost C_2: Cost B_2+ imputed value of family labour

Cost C_3 : Cost C_2 + 10 per cent of Cost C_2 on account of managerial functions performed by farmers.

Gross and net returns

Gross returns

Gross return of the farmers under the present study was estimated from returns obtained from sale of main produce.

Gross returns = Value of main produce + Value of by produce

Net returns

Net returns were computed at different costs i.e. Cost A_1, Cost A_2, Cost B_1, Cost B_2, Cost C_1, Cost C_2, and Cost C_3 by deducting respective costs from the gross returns.

Input-output ratio

It was calculated at cost A_1, Cost A_2, Cost B_1, Cost B_2, Cost C_1, Cost C_2, and Cost C_3 by dividing gross income by respective cost.

Results and Discussion

Cost of cultivation of selected Bajra growers

The cost of cultivation is helpful for crop planning therefore in order to know the cost, returns and profitability, the cost of cultivation of Bajra for small, medium, large and overall farmer was worked out.

Table 1. Per hectare cost of cultivation of Bajra **(Rs/ha)**

Sr. No.		Size of growers			
		Small	**Medium**	**Large**	**Overall**
1	Hired Human Labour				
	Male	2850.00	3075.20	3578.40	3137.40
	Female	1956.00	2011.50	2325.60	2015.85
	Subtotal	4781.00	5086.70	5904.00	5153.25
3	Bullock labour	808.50	1148.40	1376.70	1116.80
4	Machine Charges	2472.00	3326.40	4840.08	3844.80
5	Seeds	841.80	1105.80	1196.15	1081.00
6	Manures	1050.00	1775.00	2506.00	2064.80
7	Fertilizers				
	N	751.00	1009.00	1256.00	905.00
	P	609.60	600.00	567.20	596.00
	K	417.60	400.00	384.00	387.20
8	Subtotal	1779.20	2009.00	2207.20	1888.20
9	Irrigation Charges	358.47	401.66	441.44	370.40
10	Incidental Charges	183.67	269.12	310.58	250.45
11	Repairing Charges	363.26	402.21	401.66	400.10
12	Working Capital	12636.90	15524.29	19230.34	16169.80
13	Int. on working capital @6 %	758.21	931.45	1923.03	1616.98
14	Depreciation	670.50	830.50	1050	915.20
15	Land Revenue	80.00	110.00	136.48	110.40
16	**Cost A_1**	14145.61	17396.24	22339.85	18812.38
17	Rental value of leased land	-	-	-	-
18	**Cost A_2**	14145.61	17396.24	22339.85	18812.38
19	Int. on fixed Capital @ 10 %	1834.70	1880.00	2331.14	2010.60
20	**Cost B_1**	15980.31	19276.24	24670.99	20822.98

21	Rental value of land	5357.50	6311.66	8310.35	6962.43
22	**Cost B_2**	21337.81	25587.91	32981.34	27785.41
23	Family Labour				
24	Male	1260.00	1510.40	1911.00	1625.40
	Female	1117.50	1170.00	1493.07	1247.40
	Subtotal	2377.50	2680.40	3404.07	2872.80
	Cost C_1	18357.81	21956.64	28075.06	23695.78
25	**Cost C_2**	23715.31	28268.31	36385.41	30658.21
26	**10 % of C_2**	2371.53	2826.83	3638.54	3065.82
27	**Cost C_3**	26086.85	31095.14	40023.95	33724.03
28	Main produce	30130.00	35650.00	46431.00	39100.00
29	By-produce	1575.00	2880.00	4250.00	3337.00
30	Value of Total Produce	31705.00	38530.00	50681.00	42437.00
31	Per quintal cost of production	1690.10	1637.95	1598.77	1607.13

The per hectare cost of cultivation of Bajra is presented in Table .1. It is observed from Table.1. that total cost of cultivation (Cost C_3) is highest in large farmers was worked out to be Rs. 40023.95 and lowest in small farmers Rs. 26086.85. In medium and overall farmers total cost of cultivation was worked out to Rs. 31095 and Rs. 33724.03 respectively. It was observed from the result that cost A_1 was highest in larger farmer i.e. Rs. 22339.85 and it was minimum in small farmers i.e. Rs.14145.61.

The result revealed that total cost of cultivation i.e. Cost C_3 is highest in larger farmers (Rs. 40023.95) followed by overall farmers (Rs.33724.03), medium (Rs. 31095.14) and small (Rs.26086.85)

Table 2. Per hectare cost, returns from Bajra (Rs/ha)

Sr. No.	Particulars	Small	Medium	Large	Overall
1	Main Produce (qtl/ha)	13.10	15.50	20.10	17.00
	By-produce (qtl/ha)	3.50	6.00	8.50	7.10
2	Value of main produce	30130.00	35650.00	46431.00	39100.00
	Value of by-produce	1575.00	2880.00	4250.00	3337.00
3	Gross Returns	31705.00	38530.00	50681.00	42437.00
4	**Cost of cultivation at**				
	Cost A_1	14145.61	17396.25	22339.85	18812.38
	Cost A_2	14145.61	17396.25	22339.85	18812.38
	Cost B_1	15980.31	19276.25	24670.99	20822.98
	Cost B_2	21337.81	25587.91	32981.35	27785.41
	Cost C_1	18357.81	21956.65	28075.06	23695.78
	Cost C_2	23715.31	28268.31	36385.42	30658.21
	Cost C_3	26086.85	31095.15	40023.96	33724.03
5	**Net Returns at**				
	Cost A_1	17559.39	21133.75	28341.15	23624.62
	Cost B_1	15724.69	19253.75	26010.01	26614.02
	Cost B_2	10367.19	12942.09	17699.65	14651.59
	Cost C_1	13347.19	16573.35	22605.94	18741.22
	Cost C_2	7989.69	10261.69	14295.58	11778.79
	Cost C_3	5618.15	7434.85	10657.04	8712.97
6	**Input-Output ratio**				
	Cost A_1	2.24	2.21	1.79	2.26
	Cost A_2	2.24	2.21	1.79	2.26
	Cost B_1	1.98	2.00	2.05	2.04
	Cost B_2	1.49	1.51	1.54	1.53
	Cost C_1	1.73	1.75	1.81	1.79
	Cost C_2	1.34	1.36	2.24	1.38
	Cost C_3	1.22	1.24	1.26	1.25

The per hectare cost, returns and profitability of Bajra cultivation was worked out as per standard cost concept, and is presented in Table 2.

It is revealed that per hectare main produce of Bajra for small, medium and large farmer was 13.1, 15.5 and 20.1 quintals respectively. At overall level, it was 17 q/ha. The gross returns from Bajra were Rs 31705, Rs. 38530 and Rs. 50681 for small, medium and large group. At overall level, the gross return was Rs. 42437. Whereas the cost of cultivation at C_3 of these groups have been estimated to be Rs.26086.85, Rs.31095.15 and Rs.40023.96 respectively. The overall cost required for cultivation of Bajra at cost C_3 was Rs. 33724.03. The per hectare net returns at cost C_3 received by small, medium and large cultivator was Rs.5618.15, Rs.7434.85 and Rs.10657.04. At an overall level, the net return was Rs 8712.04 . The benefit-cost ratio at cost C_3 for small, medium and large group Bajra grower was 1.22, 1.24 and 1.26 respectively. The overall benefit cost ratio was 1.25.

SUMMARY

Per hectare cost A_1 was highest in larger farmer i.e. Rs. 22339.85 followed by medium size group (Rs 17396.25) and small size group (Rs.14145.61)

Per hectare total cost of cultivation of Bajra i.e. cost C_3 was higher in large size group i.e. Rs. 40023.96 Followed by small size group (Rs.26086.85) and medium size group (Rs.31095.15) respectively and at overall level it was Rs. 33724.03.

The Input-Output ratio of Bajra cultivation at cost C_3 was higher in large size group i.e. 1.26 followed by medium size group i.e. 1.24 and small size group i.e. 1.22 and at overall level it was 1.25.

CONCLUSIONS

Per hectare total cost of cultivation of Bajra i.e. cost C_3 was higher in large size group i.e. Rs.40023.96 Followed by small size group (Rs.26086.85) and medium size group (Rs.31095.15) respectively and at overall level it was Rs. 33724.03.

The Input-Output ratio of Bajra cultivation at cost 'C_3' was 1.22 in small group, 1.24 in medium group and 1.26 in large group. This indicates that, cultivation of Bajra crop was economically beneficial.

References

Aman kumar, VM Patel, RR Patel, AB Bindage 2014 Marketing costs, margin and price spread of Wheat in Banaskantha district of Gujrat state, *Indian Journal of Agriculture Marketing* **28 (2)**,1-14*,*

Chaudhari, D. D., Thakur, K. P. and Pandya, S. P. 2015. Cost of cultivation of Summer Bajra in Banaskantha district of Gujart, Agriculture Economics Department, C. P. College of Agriculture Sardar krushinagar Dantiwada Agricultural University, Baskantha.

Navadkar, D.S., Amale, A.J., Gulave, C. M .and Nannware, V.M. 2012. Economics Of production and marketing of kharif maize in Ahmednagar district of Maharashtra state. *Agric Situ India., P:247-255*.

Pagare, K. H., More, S.S and pallab Debnath. 2013. Cost and profitability of rabijowar cultivation in Marathwada region. *Journal of progressive Agriculture.,***4(2)***: 6-9*